

IN THE CLAIMS:

Sub C1
B12
Claims 1-12. (Canceled)

13. (New) A method of driving an LCD or LC electrooptic switching element with two electrodes where square-wave electric driving signals of changing polarity and driving voltage are applied to the two electrodes to drive the electrooptic switching element and amplitudes of the electric driving signals can vary between different electric levels, said method comprising the steps of:

integrating a potential difference between the two electrodes of the electrooptic switching element via an integrator to obtain a time integral value I_{nt} of the driving voltage; and

controlling the change of polarity of the electric driving signals such that the time integral value I_{nt} remains within a predetermined interval $V_{c1} \leq I_{nt} \leq V_{c2}$ where V_{c1} and V_{c2} are electric potentials input to a reference input of a respective comparator.

14. (New) The method according to claim 13, in cases where the amplitudes of the electric driving signals vary with time, said method further comprising the step of synchronously changing the predetermined interval for the time integral value I_{nt} with a change of the polarity of said electric drive signals so that the synchronous change of the predetermined interval corresponds to a completion of a DC driving voltage compensation cycle, and is adjusted according to the

amplitude variation of the electric driving signal in such a way that the time intervals of the polarity changes of the electric driving signals remain as constant as possible.

15. (New) An electronic circuitry for the implementation of the method of claim 13 comprising:

B12 an LCD or LC electrooptic switching element with two electrodes applied with driving signals of changing polarity and driving voltage;

a differential amplifier having two difference inputs where the two electrodes of the electrooptic switching element are associated with a respective, difference input of the differential amplifier;

an integrator having an input terminal and an output terminal where a signal representing the potential difference of the two electrodes is output by the output terminal of the differential amplifier and inputted into the input terminal of the integrator, and a signal output at the output at the output terminal of the integrator represents a time integral value of the driving voltage;

a first and a second comparator where the output terminal of the integrator is associated with a first comparator input of the first comparator and a second comparator input of the second comparator, the first comparator having a first reference input and the second comparator having a second reference input, said first reference and second reference inputs receiving a signal from electric potentials V_{C2} and V_{C1} , respectively;

a control "flip/flop" circuit having inputs which receive signals generated at respective,

output terminals of the first and second comparators to enable a control over logic control signals for the electrooptic switching element via "set/reset" inputs of the control "flip/flop" circuit such that the control signals for each of the electrodes of the electrooptic switching element generated at outputs of the control "flip/flop" circuit are phase shifted by 180° ; and

B)2
a voltage translator, wherein the control signals output by the control "flip/flop" circuit are input to the voltage translator, said voltage translator transforming said control signals into electric driving signals for the electrooptic switching element and outputting the transformed control signals to the electrodes of the electrooptic switching element, the amplitude of said electric driving signals being determined by a voltage level V_{LCD} , which is input to a control input of the voltage translator.

16. (New) The electronic circuitry according to claim 15, further comprising an additional analog switch, a sensor element for sensing a light intensity and logic control circuitry, wherein the additional analog switch selects between voltage levels V_{S1} and V_{S2} inputted to the analog switch to define a reference voltage V_{C1} at its output, which is input to the second reference input of the second comparator;
wherein the sensor element generates a signal at an output of the sensor element associated with a synchronization input of the logic control circuitry in order to synchronize the logic control circuitry in such a way that a logic signal at an output of the logic control circuitry is associated with a control input of the additional analog switch, said logic signal input to the additional

132
analog switch controls said additional analog switch synchronously with the driving signals for the electrooptic switching element and according to the signal of the sensor element in such a way that the additional analog switch selects the voltage V_{C1} at its output, so that the time-interval variations of the polarity change of the electric driving signals, controlled by the comparator, are as small as possible.

17. (New) An electronic circuitry for the implementation an electrooptic switching element driving method, comprising:

an LCD or LC electrooptic switching element with two electrodes applied with driving signals of changing polarity and driving voltage;

a first analog switch where the two electrodes of the electrooptic switching element are input to the first analog switch;

an integrator having an input that receives a signal from an output terminal of the first analog switch that represents the potential of one of the two electrodes;

a comparator having a comparator input and a reference input where a signal output by the integrator is fed into the comparator input and the reference input receives a signal from an electric potential V_C to generate a signal at an output terminal of the comparator;

a control "flip/flop" circuit where the generated signal at the output terminal of the comparator enables a control of logic control signals for the electrooptic switching element via an input of the control "flip/flop" circuit such that the control signals for each of the electrodes of

the electrooptic switching element generated at a first and a second output of the control “flip/flop” circuit are phase shifted by 180°;

(B)2 a second analog switch where the second output of the control “flip/flop” circuit is associated with a control input of the first analog switch, in order to select one of the inputs of the first analog switch and that the output terminal of the comparator is associated with a select input of the second analog switch such that with every change of the polarity of electric driving signals for the electrooptic switching element, said second analog switch switches for a short time an output associated with an input of the integrator from an electrically floating first input to a constant electric potential, at a second input, in order to reset the integrator to an initial state; and

a voltage translator where control signals output by the control “flip/flop” circuit are input to the voltage translator, which transforms said control signals into the electric driving signals for the electrooptic switching element and outputs the transformed control signals to the electrodes of the electrooptic switching element, the amplitude of said driving signals being determined by the electric voltage V_{LCD} , which is input to a control input of the voltage translator.

18. (New) An electronic circuitry for the implementation of an electrooptic switching element driving method, comprising:

- an LCD or LC electrooptic switching element with two electrodes;
- a first analog switch;

B12
a voltage translator;

an integrator where a voltage output of the first analog switch is associated with an input of the voltage translator and sends a signal directly to an input of the integrator;

a comparator having a comparator input and a reference input where an output terminal of the integrator outputs a signal to the comparator input of the comparator, said reference input receiving a signal from an electric potential V_C and together with the signal input to the comparator input generates a signal at an output of the comparator;

a control "flip/flop" circuit having an input terminal for receiving the signal generated at the output of the comparator to enable control of logic control signals for the electrooptic switching element such that the control signals for each of the electrodes of the electrooptic switching element generated at outputs of the control "flip/flop" circuit are phase shifted by 180° ; and

a second analog switch having a select input associated with the output of the comparator such that with every change of the polarity of electric driving signals for the electrooptic switching element, said second analog switch switches for a short time to output from an electrically floating first input to a constant electric potential V_p , at a second input, in order to reset the integrator to an initial state, said analog switching output being input to the integrator and wherein the outputs of the control "flip/flop" circuit are input to the voltage translator, which transforms said control signals into the electric driving signals for the electrooptic switching element and outputs the transformed control signals to the electrodes of the electrooptic

switching element, the amplitude of of said driving signals being determined by the electric voltage V_{LCD} , which is connected to a control input of the voltage translator.

B12 19. (New) The electronic circuitry according to claim 17, further comprising an additional analog switch, a sensor element for sensing a light intensity and a logic control circuitry, wherein the additional analog switch selects between voltage levels V_{S1} and V_{S2} to define a reference voltage V_{C1} , the voltage levels V_{S1} and V_{S2} being inputted to the additional analog switch, and the additional analog switch outputs a signal to the second reference input of the comparator, wherein the sensor element generates a signal at an output of the sensor element that is input to a synchronization input of the logic control circuitry in order to synchronize the logic control circuitry in such a way that a logic signal at an output of the logic control circuitry controls said additional analog switch synchronously with the driving signals for the electrooptic switching element, said output of the logic control circuitry being input to a control input of the additional analog switch, and according to the signal of the sensor element, the additional analog switch selects the voltage V_C at its output, so that the time-interval variations of the polarity change of the electric driving signals, as controlled by the comparator, are as small as possible.

20. (New) The electronic circuitry according to claim 17, characterized in that the integrator comprises an integrating capacitor, a transfer capacitor, two electronic analog switches and two transistors of the opposite polarity, wherein a complete transfer of charge from the transfer

B1²
capacitor into the integrating capacitor is provided by the two transistors with base leads interconnected and emitter leads interconnected, such that an integration of the electrooptic switching element driving signals is achieved by a periodic, sufficiently frequent, transfer of the charge proportional to the electrooptic switching element driving voltage into the integrating capacitor by the transfer capacitor.

21. (New) The electronic circuitry according to claim 17, characterized in that the comparator comprises two transistors of opposite polarity having base leads connected to collector leads of the other transistor, while remaining emitter leads are connected to an integrating capacitor of the integrator and an output signal of the comparator is provided by an additional NPN transistor.

22. (New) The electronic circuitry as claimed in claim 18, further comprising an additional analog switch, a sensor element for sensing a light intensity and a logic control circuitry, wherein the additional analog switch selects between voltage levels V_{S1} and V_{S2} to define a reference voltage V_{C1} , the voltage levels V_{S1} and V_{S2} being inputted to the additional analog switch, and the additional analog switch outputs a signal to the second reference input of the comparator,

wherein the sensor element generates a signal at an output of the sensor element that is input to a synchronization input of the logic control circuitry in order to synchronize the logic control circuitry in such a way that a logic signal at an output of the logic control circuitry

B12
controls said additional analog switch synchronously with the driving signals for the electrooptic switching element, said output of the logic control circuitry being input to a control input of the additional analog switch, and according to the signal of the sensor element, the additional analog switch selects the voltage V_C at its output, so that the time-interval variations of the polarity change of the electric driving signals, as controlled by the comparator, are as small as possible.

23. (New) The electronic circuitry according to claim 18, characterized in that the integrator comprises an integrating capacitor, a transfer capacitor, two electronic analog switches and two transistors of the opposite polarity, wherein a complete transfer of charge from the transfer capacitor into the integrating capacitor is provided by the two transistors with base leads interconnected and emitter leads interconnected, such that an integration of the electrooptic switching element driving signals is achieved by a periodic, sufficiently frequent, transfer of the charge proportional to the electrooptic switching element driving voltage into the integrating capacitor by the transfer capacitor.

24. (New) The electronic circuitry according to claim 18, characterized in that the comparator comprises two transistors of opposite polarity having base leads connected to collector leads of the other transistor, while remaining emitter leads are connected to an integrating capacitor of the integrator and an output signal of the comparator is provided by an additional NPN transistor.